

Unified Manuscript Guidelines for *The Wildlife Society* Peer-Reviewed Publications

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Abstract

The transition to submitting manuscripts online via AllenTrack and the changes to the publications of *The Wildlife Society* warrant new publication guidelines. These guidelines present details on policies of the *Wildlife Society Bulletin* and *The Journal of Wildlife Management* and describes procedures for submitting, reviewing, and editing manuscripts. The intent is to unify manuscript guidelines for 2006 in order to smooth the transition to the new publications which start in 2007. Guidelines for subject matter begin on page 305; a description of the reviewing and editing process is presented on page 304; and details for format and style begin on page 306. Appendices are included for assistance in on-line submittal, standard abbreviations, and assistance in formatting cited literature. (JOURNAL OF WILDLIFE MANAGEMENT 70(1):304–320; 2006)

Key words

author, format, guidelines, instructions, manuscript, policy, style.

Unified Author Guidelines

Authors should understand there are differences between articles in final printed form and correct format of submitted manuscripts. This understanding is especially important during the transition period for publications of *The Wildlife Society* (TWS).

Beginning in 2006 *The Journal of Wildlife Management* (JWM) will be printed in a new format comparable with the *Wildlife Society Bulletin* (WSB). Beginning in 2007 peer-reviewed WSB articles will be combined with JWM articles to form a new publication. Peer-edited articles formerly published in WSB will become part of *The Wildlife Professional* which will be received as a TWS member benefit. Please contact the Editor-in-Chief of the *Wildlife Monographs* for specific instructions for contributions to that publication.

Publishing a professional paper proceeds most smoothly if authors understand the policy, procedures, format, and style of the outlet to which they are submitting a manuscript. These instructions supersede all previous guidelines. Papers that clearly deviate from this format and style may be returned for correction before review. We hope these guidelines will make that unnecessary.

In general, these guidelines apply to all manuscripts submitted to TWS via AllenTrack (JWM or WSB). Specifically, this format applies to full-length research articles. Please note, JWM now also publishes shorter research notes (for formatting see <http://www.wildlife.org/publications/JWMresearchnotesguidelines.pdf>).

For authors with experience and knowledge of previous JWM or WSB guidelines, it may be helpful to identify and review significant changes. Fundamental changes include: 1) a submission section that outlines the electronic submission process, 2) an equation box section that specifies acceptable in-text equation box use, 3) detailed instructions about online references, and 4) unified formatting for **Literature Cited**. Please review this document for many additional minor changes.

Policy

Reviewers and editors judge each submitted manuscript on data originality, concepts, interpretations, accuracy, conciseness, clarity,

appropriate subject matter, and contribution to existing literature. Prior publication or concurrent submission to other refereed journals precludes review or publication in JWM or WSB (see additional information in section on Transmittal Letter and Submission). The JWM and WSB have similar quality standards. Fisheries manuscripts are discouraged unless information is part of an account that mainly concerns terrestrial vertebrates.

Submitting the Manuscript

The JWM and WSB only accept manuscripts submitted electronically via AllenTrack. You can register for an account (which will give you a home page on the system), log in to an existing account, submit a manuscript, and track the progress of your manuscript at <http://jwm.allentrack.net/> or <http://wsb.allentrack.net/>. Each site maintains a separate database and you must register at the site to which you are submitting. Before submitting a manuscript, log on to AllenTrack and read the “Author Instructions” posted on your home page. Then, click “Submit Manuscript” when you are ready to enter all the required information and upload your manuscript files.

Submit manuscript online at <http://wsb.allentrack.net/> or at <http://jwm.allentrack.net/>. (See Appendix A for guidelines on how to use AllenTrack.) Each publication is managed by an Editor-in-Chief (EIC). Include a letter of transmittal directed to the appropriate EIC indicating the paper is submitted for exclusive consideration by *The Wildlife Society*. Without the “exclusive consideration” statement, the Editor will not initiate review. The statement ensures that data and findings have not been published previously or submitted elsewhere for simultaneous consideration. A paper is considered published if it 1) appears in a serial publication abstracted by *Biological Abstracts* or a similar reference volume, 2) appears in a book (including conference proceedings) printed in >500 copies and widely distributed to libraries, or 3) has been published as part of a numbered series by an agency. These guidelines for previous publication are flexible in certain instances, such as technical analyses of findings published previously for lay audiences. Kendall (1981) elaborated on the seriousness of dual publication; WSB editors subscribe to his standards.

If any portion of the manuscript has been published or reported

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elsewhere, explain any similarities between information in the manuscript and the other publication and furnish a citation of such publications or manuscripts. Theses (M.S.) and dissertations (Ph.D.) do not constitute prior publication and need not be mentioned in the cover letter, but they should be cited in the manuscript (see **Literature cited style**). Similarly, brief abstracts of talks given at meetings do not constitute prior publication. Generally, unpublished reports required by sponsors and not distributed as part of a numbered series (or in other ways that might result in accession by libraries) do not constitute prior publication. Most symposia proceedings are considered publications; however, editors may decide these resources on a case-by-case basis. Provide information that bears on ethical and copyright considerations (CBE Style Manual Committee 1994:599–600) and other information that might facilitate review and editing.

Page Charges

Page charges are mandatory and the submitting author is required to acknowledge that he accepts responsibility for page charges should the manuscript be accepted for publication. Page charge waivers are at the discretion of the EIC and must be requested before submittal. Waivers will be granted to TWS members only. The fee to print color images is \$650/color plate as of November 2005; this fee will be invoiced prior to production of page proofs.

Copyright

If a manuscript not in the public domain is accepted for publication, authors or their employers must transfer copyright to *TWS*. Publications authored by federal government employees are in the public domain. Manuscript submission implies entrusting copyright (or equivalent trust in public-domain work) to the Editor until the manuscript is rejected, withdrawn, or accepted for publication. If accepted, *TWS* retains copyright.

Subject Matter – *Journal of Wildlife Management*

The *JWM* publishes manuscripts containing information from original research that contributes to the scientific foundations of wildlife management. Suitable topics include the results and interpretations of investigations into the biology and ecology of wildlife that can be used for management. *JWM* papers also address theoretical and conceptual aspects of wildlife management, including development of new approaches to quantitative analyses, modeling of wildlife populations and habitats, and other topics that are germane to advancing the science of wildlife managements. Methods and techniques papers are suitable for *JWM* only if they address new research methods and techniques that pertain to wildlife management and science.

Subject Matter – *Wildlife Society Bulletin*

Peer-reviewed Articles

The following subject matter areas are appropriate for peer-refereed and peer-edited articles in *WSB*:

1. *Management*. These articles describe the effects of specific practices or policies on populations of animals or plants. Examples include 1) effects of agriculture, livestock, forest, or range management practices; 2) effects of practices directed toward wildlife or its habitat, such as supplemental feeding, food plots or food plantings, cover plantings, prescribed burn-

ing, brush or tree-canopy reduction, soil disturbance, and habitats created by humans; 3) methods of reducing damage caused by wildlife, including translocation, aversive conditioning, population reduction, chemicals, scare devices, and related practices; 4) tests of harvest regulations or procedures or effects of harvest management on populations; and 5) effects of private or governmental policy on wildlife.

2. *Techniques*. Techniques papers report a significant evaluation of, or improvement upon, techniques used frequently in management (e.g., counting or surveying populations to determine effects of management; sexing, aging, capturing, and handling wildlife).
3. *Contemporary issues*. This category offers great flexibility and features articles that relate to major, current impacts of human activities on wildlife or its habitat. Contributions on political or legal issues, special topics in wildlife management, environmental impacts, refinement of state or federal natural resource programs or policies, regional or national surveys of wildlife management programs or policies, social movements affecting wildlife management, and related topics are welcomed.
4. *Law enforcement*. Papers detail practices, techniques, and procedures of wildlife law enforcement and their influence on human and wildlife populations.
5. *Education*. Articles address education of natural resource stakeholders, hunter education, university curricula, and related topics.
6. *Economics*. Articles discuss resource economics, cost effectiveness of management programs or practices, economic values of wildlife or outdoor experiences, and related topics.
7. *Sociology or psychology*. Papers discuss sociology, values, attitudes, perceptions, and psychology of natural resource stakeholders and managers.
8. *Administration*. Articles deal with administration of wildlife programs or agencies; methods, examples, and application of administrative policy or policy development; local, state, or regional planning; and related topics.
9. *Philosophy*. Papers address the principles, logic, and ethics under which wildlife managers and the profession operate.
10. *Reviews*. Papers reviewing subject matter consistent with categories 1–9 above are especially encouraged.
11. *Wildlife software*. This feature provides for the description of computer software that has application to wildlife management and research. Contributors must submit their software product and documentation to the Software Editor (see a recent issue of *WSB* or contact Editor for name and address). The Software Editor solicits peer-reviews of software before accepting a description of the product for publication.

Peer-edited Departmental Submissions

See *Format for departments* on page X for instructions for formatting departmental submissions. Peer-edited manuscripts not published in *WSB* during 2006 will be transferred to *The Wildlife Professional*. Guidelines will remain the same.

1. *From the Field*. These articles are essentially brief notes. They may pertain to any subject discussed on pages 3–4. They are distinct from a feature article in that they may not exceed 5 total published pages and do not contain photos except in the case of photos or diagrams demonstrating a new technique or new equipment. *From the Field* articles would generally consist of

ancillary but noteworthy observations relevant to natural resource managers and wildlife biologists. These articles include an abstract and key words.

2. *In My Opinion/Commentary*. *In My Opinion* articles are essays that question values, priorities, precepts, and philosophical foundations under which wildlife management operates. These articles can uncover dogma, false assumptions, and misguided policy or stimulate thought and innovation. *Commentaries* are of 2 types: a Letter to the Editor or a response to an issue, movement, policy, or program that could impact wildlife or its habitat. In either case the manuscript must be well documented and prepared professionally. The purpose of this feature is to get important information in print in a timely fashion. The Editor may appoint a peer-editor or accept *In My Opinion* and *Commentary* essays without peer-review. *In My Opinion* and *Commentary* articles do not require an abstract but should include key words.
3. *Head-to-Head*. These articles are a reaction to a previous article in *WSB* paired with a response from the original author(s). The purpose of this feature is to continue the dialogue over what is often a controversial issue. *Head-to-Head* articles should contain an abstract and key words.
4. *Student Voices*. These articles discuss issues of particular relevance to students within the natural resources field or are award-winning or otherwise outstanding student-authored essays. *Student voices* articles may or may not contain an abstract but should include key words.
5. *Book Reviews*. Book reviews provide a brief synopsis and commentary on a book relevant to some aspect of the natural resources field.
6. *Obituaries*. All obituaries should be submitted directly to the Executive Director, The Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814 (tw@wildlife.org). Obituaries are published only for members of The Wildlife Society, with few exceptions. All obituaries must be approved by the Executive Director prior to submission to the Editor.

Replication of Treatments

Hurlbert (1984) pointed out that field researchers have frequently misused inferential statistics because treatments were not replicated. However, because of the nature of field research, true replication sometimes will not be feasible. Guthery (1987) presented guidelines for authors and reviewers of manuscripts based on unreplicated treatments.

Format and Style

Editors and reviewers expect proper style and format and may be distracted or irritated when a manuscript is flawed in this regard. Please contact the appropriate editorial office for assistance in formatting your manuscript.

Length of Articles

The *JWM* and *WSB* consider articles of any length not likely to exceed 15 pages in print (about 35 manuscript pages [double-spaced, 12-point font], including tables and figures). Authors should submit articles of >35 typed pages to *Wildlife Monographs*. Articles submitted for peer-edited review should not exceed 25 manuscript pages.

Page Format

Allen Press Composition services accepts the following file formats for text and table documents: Word, Word Perfect, Word for Mac,

html, rtf, and Excel (for tables only). Acceptable file formats for figures include pdf, eps, jpeg, tiff, Postscript, Word, and PowerPoint. However, the editorial offices are more limited in word processing software and prefer manuscripts to be submitted in Word. You may submit manuscripts to AllenTrack using the listed software but, if your manuscript is accepted, you will need to provide a Word, Text, or rtf file for in-house editing purposes.

General guidelines.

1. Double space all text, including title, authors' addresses, text, long quotations within text, literature citations, table footnotes, table titles, table bodies, and figure titles.
2. Do not break (hyphenate) words on the right margin.
3. Do not justify the right margin.
4. Use Times New Roman font, 12-point type throughout the manuscript, including title and headings.
5. Italicize words or symbols, such as scientific names and mathematical symbols, which should appear italicized in print. Do not use italic type for emphasis.
6. Use boldfaced type only for the title and first- and second-level headings. Do not use bold in text for emphasis. Third-level headings should be indented, italicized, and followed by the text, not boldfaced.
7. Maintain margins of 2.5 cm (1 inch) on all sides of the page.

Title Page: Running Head, Title, and Authors

The following guidelines apply to all text files.

On page 1 single-space the following information in the upper left corner: date (update with each revision) and the corresponding author's name, address, telephone, fax, and e-mail. Thereafter, all text is double-spaced, including authors' addresses, the title of the paper, figure legends, and tables. If the corresponding author's email address changes at any point following submission of the paper, update the personal information on the AllenTrack website and notify the editorial staff.

Type the running head (RH) on the first line following the correspondent's address. The RH is limited to 45 characters, left-justified, and typed in sentence-case letters (capitalize only the first word and proper nouns) followed by a dot (or raised period) and the last name(s) of ≤ 2 authors. For ≥ 3 authors, use the name of the first author followed by "et al."

The title follows the RH and is centered in bold font, sentence-case letters. The title may not include abbreviations, acronyms, or punctuation, and may not exceed 10 words (unless doing so forces awkward construction). The title identifies manuscript content. Do not use scientific names in the title except for organisms that do not have, or are easily confused by, common names. Do not use numbers in titles or the RH.

Authors' names are left-justified in sentence-case letters. Each name is followed by the author's affiliation and address (usually where the author was employed during the study) also in sentence-case letters. The second and subsequent lines of an author's address are indented 5 spaces using the hanging indent function. Use available U.S. Postal Service (USPS) abbreviations (Appendix B), zip codes, and the country abbreviation (e.g., USA), in each address. Write out words like Street, Avenue, and Boulevard, but abbreviate directions (e.g., N. and N.W.). For multiple authors with the same address, repeat the address after each author's name.

Footnotes

Insert footnotes using the footnote function. Use footnotes to reference the present address of an author when it differs from the byline address. Footnotes also may be used to indicate a deceased author. Each footnote starts with a numerical superscript. No other information should be presented in footnotes. Endorsement disclaimers and pesticide warnings should be incorporated in the text. For information on table footnotes, see the Tables section.

Abstract

Begin with the word “**Abstract**” (left-justified) in italic and bold font followed by a colon. The **Abstract** text begins after the colon on the same line and is a single paragraph not exceeding 1 line/page of text (3% of length of text), including **Literature cited**. The **Abstract** includes:

Problem studied or hypothesis tested.—Identify the problem or hypothesis and explain why it is important. Indicate new data, concepts, or interpretations directly or indirectly used to manage wildlife.

Pertinent methods.—State methods used to achieve the results summarized in the **Results** (keep the methods brief unless a new, greatly improved method is reported).

Results.—Emphasize the most important results, positive or negative.

Utility of results.—Explain how, when, where, and by whom data or interpretations can be applied to wildlife problems or contribute to knowledge of wildlife science.

Key Words

Key words follow the abstract. The phrase “**Key words**” (left-justified, typed in italicized and bold font) is followed by a colon and ≤10 key words in alphabetical order. Include some words from the title and others that identify: 1) common and scientific names of principal organisms in the manuscript; 2) the geographic area, usually the state, province, or equivalent, or region if its name is well known; 3) phenomena and entities studied (e.g., behavior, populations, radiotelemetry, habitat, nutrition, density estimation, reproduction); 4) methods (only if the manuscript describes a new or improved method); and 5) other words not covered above but useful for indexing.

On the line following Key words, insert “**Wildlife Society Bulletin 00(0): 000–000**” or ***The Journal of Wildlife Management 00(0): 000–000, 20XX*** (bold, italicized, and flush right).

Text Pages

Using the Header function, place author name(s) (e.g., Smith, Smith and Jones, Smith et al.) in the upper left corner of all pages following the title page. Place page numbers in the upper right corner. These notations help keep the manuscript sections together during reviewing, editing and typesetting.

Headings

Three levels of headings may be used. First-level headings are in sentence-case lettering, centered, and in bold type. Second-level headings are in sentence-case and bold lettering, but are left-justified. For both first- and second-level headings, the text follows on the succeeding line. Third-level headings are indented 5 spaces, italicized, followed by a period, 2 spaces and then the text. Under a first-level heading, use only third-level headings if the subsections are short (≤2 paragraphs; see **Abstract** section of

this manuscript for an example). Avoid repeating exact wording of the heading in the text following second- and third-level headings. Avoid 1-sentence paragraphs. See *JWM Research Note Guidelines* (available at <http://www.wildlife.org/publications/JWMresearchnotesguidelines.pdf>) for approved Research Note headings.

Major Sections of Manuscript

The introduction (no heading) starts below the publication name and contains a concise synthesis of literature specific to the manuscript’s main topic. In the latter part of this section, state the objectives of the study and/or the hypotheses tested.

Most *TWS* manuscripts have 8 major sections: introduction, **Study area**, **Methods**, **Results**, **Discussion**, **Management implications**, **Acknowledgments**, and **Literature cited**. It is not permissible to combine **Study area** and **Methods** or **Results** and **Discussion**. Merging these sections leads to superfluous wording, unnecessary discussion, and confusion.

Most **Study area** descriptions should be presented in past tense (e.g., “average annual precipitation was 46 cm,” “habitat was primarily grass”). Exceptions include geological formations that have been present for centuries. **Methods** should be brief and include dates, sampling schemes, duration, research or experimental design, and data analyses. Write the **Methods** in the active voice (i.e., write “We recorded age, sex, and mass...” and “We analyzed data using logistic regression,” rather than “Age, sex and mass were recorded” or “Logistic regression was used”; see section on Style and Usage). Previously published methods should be cited without explanation. New or modified methods should be identified as such and explained in detail. Many research projects require animal-welfare protocols, and these should be cited in the **Methods** section (not in the **Acknowledgments**). If an approval number for the protocol was necessary, list it parenthetically following the relevant statement.

Present **Results** in a clear, simple, concise, and organized fashion. Avoid overlapping text with information in tables and figures; do not explain analyses that should have been described in the **Methods** section. Always try to describe the magnitude of the biological effect in addition to the results of statistical analyses. That is, terms such as “fewer” or “smaller” tell us little, and stating that something was “statistically different ($P < 0.01$)” without giving the actual difference conveys little meaning to the reader. For example, stating that “*A* was 25% larger than *B* ($P < 0.001$)” conveys more information than simply stating that “*A* was significantly larger than *B*.” **Results** should be presented in past tense (e.g., body mass loss occurred during winter). Reserve comments on interpretation of results for the **Discussion**.

The **Discussion** provides an opportunity for interpreting data and making literature comparisons. Reasonable speculation and new hypotheses to be tested may be included in the **Discussion**. Do not repeat results and comment only on the most important results. Systematic discussion of every aspect of the research leads to unnecessarily long manuscripts; be synthetic and relate your findings directly to your overall project goal, objectives, and hypotheses as appropriate.

The **Management implications** section should be short and direct but explain issues important to management and conservation that are derived directly from your results. Do not restate material from the Results or Discussion sections. This section

should address specific management opportunities or problems wherever possible.

The **Acknowledgments** (note preferred spelling) section appears immediately before **Literature cited**. This section should be brief and include initials (rather than first names) of individuals cited. **Acknowledgments** should be straightforward without ornate and qualifying adjectives or personal remarks. For example: “We thank G. A. Baldassarre, M. Boyce, C. E. Braun, H. E. Hodgdon, R. L. Lee, and M. Kirsch for review comments and contributions to this manuscript. G. C. White assisted with revision of the mathematics and statistics subsection. Portions of this manuscript have been extracted from Ratti and Ratti (1988) and Gill and Healy (1980) with permission of The Wildlife Society. This is Contribution 836, University of Idaho Forest, Wildlife, and Range Experiment Station. L. M. Smith was supported by the Caesar Kleberg Foundation for Wildlife Conservation.”

Literature Cited

See Appendix C for detailed instructions on how to format citations. Maintain double-spacing and use hanging indents (rather than blank lines) to differentiate between citations. Present citations within the manuscript in chronologic, then alphabetic, order and present citations within the **Literature cited** section in alphabetical, then chronologic, order. At the end of the **Literature cited** section type “*Associate editor:*” (the name of the Associate editor [AE] will be filled in later).

Figure Legends and Tables

Compile figure legends on 1 (or more) page(s) that starts on a new page following the **Literature cited**. Tables may be included as part of the manuscript file or submitted to AllenTrack as separate documents. Table headings must be included in the table file. Note: while AllenTrack provides spaces to enter figure and table captions, these captions do not carry over to the merged file; they are for on-line reviewing only.

Format for Departments

Contributions to *Book Reviews* and *Obituaries* have a format identical to regular articles except that the author name and address section appears at the end of the article. Contributions to *Student Voices*, *In My Opinion*, *Commentary*, and *From the Field* have a format identical to regular articles. Submit author photos and biographical information with contributions to *Student Voices*, *In My Opinion*, *Commentary*, and *From the Field*.

Style and Usage

Manuscripts with publishable data may be rejected because of poor writing style (e.g., long and complex sentences, superfluous words [Table 1], unnecessary information, and poor organization). Most editors are patient with this problem and are willing to offer helpful suggestions. However, reviewers may be less tolerant of poor writing, and this may result in negative reviews. Many problems can be corrected by having your manuscript critically reviewed by colleagues before submission for publication. Authors are urged to review chapters 3 and 4 in the “CBE Style Manual” (CBE Style Manual Committee 1994) and “Writing with Precision, Clarity, and Economy” (Mack 1986). Your writing style should be direct and concise. Minimize repetition among different sections of the paper. Many common problems may be avoided by use of a carefully prepared outline to guide manuscript

Table 1. Common expressions with superfluous words.^a

| Superfluous wording | Suggested substitute |
|--|-------------------------|
| the purpose of this study was to test the hypothesis | I (or we) hypothesized |
| in this study we assessed | we assessed |
| we demonstrated that there was a direct | we demonstrated direct |
| were responsible for | caused |
| played the role of | were |
| on the basis of evidence available to date | consequently |
| in order to provide a basis for comparing | to compare |
| as a result of | through, by |
| for the following reasons | because |
| during the course of this experiment | during the experiment |
| during the process of | during |
| during periods when | when |
| for the duration of the study | during the study |
| the nature of | (omit by rearrangement) |
| a large (or small or limited) number of | many (or few) |
| conspicuous numbers of | many |
| substantial quantities | much |
| a majority | most |
| a single | one |
| an individual taxon | a taxon |
| seedlings, irrespective of species | all seedlings |
| all of the species | all species |
| various lines of evidence | evidence |
| they do not themselves possess | they lack |
| were still present | persisted, survived |
| the analysis presented in this paper | our analysis |
| indicating the presence of | indicating |
| despite the presence of | despite |
| checked for the presence of | checked for |
| in the absence of | without |
| a series of observations | observations |
| may be the mechanism responsible for | may have caused |
| it is reasonable to assume that where | with light not limiting |
| light is not limiting | |
| in a single period of a few hours | in a few hours |
| occur in areas of North America | are in North America |
| adjacent transects were separated by | ≥20 m apart |
| at least 20 m | |
| in the vicinity | nearby |
| separated by a maximum distance of 10 m | 3–10 m apart |
| and a minimum distance of 3 m | |
| the present-day population | the population |
| their subsequent fate | their fate |
| whether or not | whether |
| summer months | summer |
| are not uncommon | may be |
| due to the fact that | (omit by rearrangement) |
| showed a tendency toward higher survival | had higher survival |
| devastated with drought-induced desiccation | killed by drought |

^a Mack (1986:33). Reprinted with permission from the Ecological Society of America.

writing. Other helpful suggestions are presented by Strunk and White (1979), Day (1983), and Batzli (1986).

The most common error in manuscripts is use of passive voice. Use first person and active voice throughout the entire manuscript to avoid superfluous or unclear wording. For example, instead of writing “false absences were estimated” write, “we estimated false absences.” Review the list of commonly misused words (Table 2) before preparing your manuscript.

Do not hyphenate words at the right margin, and do not right-justify text. Set margins at 2.5 cm (1 in) on all sides. Do not violate margin boundaries to begin a new paragraph or to place

Table 2. Words that commonly need correction in manuscripts.^a

| Word and proper usage |
|---|
| accuracy (see precision): extent of correctness of a measurement or statement. |
| affect (see effect): verb, to cause a change or an effect; to influence. |
| among (see between): use in comparing >2 things. |
| between (see among): use in comparing only 2 things. |
| cf.: compare |
| circadian: approximately 24 hours. |
| continual: going on in time with no, or with brief, interruption. |
| continuous: going on in time or space without interruption. |
| diurnal: recurring every 24 hours; occurring in daylight hours. |
| effect (see affect): usually a noun, the result of an action; as an adverb (rare), to bring about or cause to exist, or to perform. |
| e.g. (see i.e.): for example. |
| enable (see permit): to supply with means, knowledge, or opportunity; to make possible. |
| ensure (see insure): to make certain or guarantee. |
| farther: more distant in space, time, or relationship. |
| further: going beyond what exists, to move forward. |
| i.e. (see e.g.): that is. |
| incidence (see prevalence): number of cases developing per unit of population per unit of time. |
| insure (see ensure): to assure against loss. |
| livertrap: verb. |
| live trap: noun. |
| logistic: symbolic logic. |
| logistics: operational details of a project or activity. |
| mass (see weight): proper international use for measures of mass. |
| ovendry: adjective. |
| oven-dry: verb. |
| percent: adjective, adverb, or noun. Spell out only when the value is spelled out or when used as an adjective. Use “%” with numerals. |
| percentage: noun, part of a whole expressed in hundredths; often misused as an adjective, e.g., percent error, not percentage error. |
| permit (see enable): to allow, to give formal consent. |
| precision (see accuracy): degree of refinement with which a measurement is made or stated; e.g., the number 3.43 shows more precision than 3.4, but is not necessarily more accurate. |
| prevalence (see incidence): number of cases existing per unit of population at a given time. |
| sensu: as understood or defined by; used in taxonomic reference. |
| since: from some past time until present; not a synonym for “because” or “as.” |
| presently: in the future, not synonymous with “at present” or “currently.” |
| that (see which): pronoun introducing a restrictive clause (seldom immediately preceded by a comma). |
| usage: firmly established and generally accepted practice or procedure. |
| utilization, utilize: avoid by using “use” instead. |
| various: of different kinds. |
| varying: changing or causing to change. Do not use for different. |
| very: a vague qualitative term; avoid in scientific writing. |
| weight (see mass): should seldom be used. |
| viz: namely. |
| which (see that): pronoun introducing a nonrestrictive clause (often preceded by a comma or preposition [for, in, or of which]); the word most often misused in <i>JWM</i> manuscripts. |
| while: during the time that. Use for time relationships but not as synonym for “whereas,” “although,” and “similarly,” which do not imply time. |

^a Adapted in part from CBE Style Manual Committee (1994:123–125); also see Day (1983:140–142).

the **Literature cited** at the top of a new page (i.e., do not leave >2.5 cm of space at the bottom of a page except to prevent a widow heading). Do not underline words in the text to indicate emphasis. Type scientific names in italic font and type Latin phrases in plain type (e.g., post hoc, a priori).

Numbers and Unit Names

Use digits for numbers (e.g., 7 and 45) unless the number is the first word of a sentence or it is used as a pronoun (e.g., at least one escaped), in which case the number is spelled out. Use symbols or abbreviations (e.g., % and kg) for measurement units that follow a number unless the number is indefinite (thousands of hectares), is a “0” (zero) standing alone, or is the first word in a sentence. In such cases spell out the number and unit name or recast the sentence. Avoid using introductory phrases such as “A total of . . .” Spell out ordinal numbers (e.g., first, second) in text and literature cited, but use digits for cases such as 3-fold and 2-way. Convert fractions (1/4, 1/3, etc.) to decimals except where they misrepresent precision.

Hyphenate number-unit phrases used as adjectives (e.g., 3-m² plots and 3-yr-old males) but not those used as predicate adjectives (e.g., plots were 3 m², males were 3 yr old). Insert commas in numbers ≥1,000 (except for pages in books, clock time, or year dates). Do not insert a comma or hyphen between consecutive, separate numbers in a phrase (28 3-m² plots). Do not use naked decimals (i.e., use 0.05, not .05). When identifying items by number, names should be lowercase (e.g., plot 1, site 5, day 3).

Time and Dates

Use the 24-hour system: 0001 through 2400 hours (midnight). Date sequence is day month year, without punctuation (e.g., 4 March 2000). Do not use an apostrophe for plural dates (e.g., 1970s). Spell out months except in parentheses, tables, and figures, in which 3-letter abbreviations are used with no period (e.g., 31 Mar 1947).

Mathematics and Statistics

Use italic font for Roman letters used as symbols for quantities (e.g., *n*, *x̄*, *F*, *t*, *Z*, *P*, and *X*; Appendix D). Do not underline or italicize numbers, Greek letters (e.g., chi-square, χ^2), names of trigonometric and transcendental functions, or certain statistical terms (e.g., ln, e, exp, max, min, lim, SD, SE, CV, and df; check Appendix E for the correct terms). Degrees of freedom used in a statistical test may be reported either as subscripts to the relevant test statistic ($F_{1,14}=6.84$) or following it ($F=6.84$, $df=1,14$). Use bold font for items that should be set in boldface type. Insert symbols from your word processing program’s symbol directory as opposed to creating the symbol with keyboard functions (e.g., chi-square should appear as χ^2 [found in the symbol directory], as opposed to X^2 [created with keyboard functions]). Use the minus sign from the symbols menu to indicate (–) “minus,” and negative values as opposed to the keyboard hyphen. Use times (×) to indicate multiplication, as opposed to an asterisk (*) or a lowercase x.

Insert a space on both sides of symbols used as conjunctions (e.g., $P > 0.05$), but close the space when symbols are used as adjectives (e.g., >20 observations). Where possible, report exact probabilities ($P = 0.057$, not $P > 0.05$). A subscript precedes a superscript (X_i^3) unless the subscript includes >3 characters. Break long equations for column-width printing (67 mm) if they appear in the main body of the manuscript; long equations and matrices can be printed page-width (138 mm) in appendices. Follow Swanson (1974) or the CBE Style Manual Committee (1994:206–218) for general guidance, and follow MacInnes (1978) for advice on presentation of statistics. Type the names of statistical programs or analytical methods (that are not acronyms) in capital letters (e.g., PROC LIFEREG, POPGEN, Program

MARK). See Appendix C for instructions on how to cite statistical software packages. We urge authors to read Tacha et al. (1982) and Wang (1986) for reviews of common statistical errors. Authors should consider statistical power when judging their results (*JWM* 59:196–198).

Avoid redundant use of the word “significantly” (e.g., “the means differed [$P = 0.016$]”). Report results of statistical tests or central tendency as in the following examples: ($t_1 = 2.47$, $P = 0.013$), ($F_{3,12} = 33.10$, $P = 0.01$), ($\chi^2_{10} = 22.1$, $P = 0.029$), or ($\bar{x} = 7.8$, $SE = 3.21$, $n = 46$). Note that the appropriate degrees of freedom are subscripted with the test statistic. Present P -values less than 0.001 as $P \leq 0.001$.

Equations

Equations require precise internal spacing and formatting, and are most easily correctly constructed with the Microsoft Equation software, creating an equation object (“equation box”). Simple mathematical expressions, such as symbols with simple subscripts or superscripts and Greek letters can be typed as text. However, care must be taken to be sure that the font and font size are the same wherever the symbol is used, and inconsistencies can arise when text symbols are mixed with symbols generated with Microsoft Equation. For example, the Greek letter phi can be represented by both ϕ and ϕ , which leads to confusion when both appear in the manuscript, but are to imply the same symbol. Mathematical symbols for estimators are typically given “hats” (carets, e.g., $\hat{\mu}$), and require the use of the Equation software, as does proper construction of the symbol for an estimated mean (\bar{x}). Complex equations should be submitted as display equations in equation boxes: 1) characters that have hats, tildes, or other expressions that would not translate well into straight text, 2) sums, products, and similar statements, and 3) brackets around matrices and complex expressions. In-line equations using division should use “/” instead of stacking above and below a horizontal line. Statistical terms that are not to be italics (e.g., ln, e, exp, max, min, lim, SD, SE, CV, and df) can appear in equation boxes at text without italics by changing the style to “text” while editing the equation box.

Abbreviations and Acronyms

Metric units, their appropriate prefixes, and abbreviations identified by an asterisk in Appendix E may be used in the text. All other abbreviations or acronyms (except DNA) used in the Abstract or text must be defined the first time used (e.g., Geographic Information System [GIS], Global Positioning System [GPS], Akaike’s Information Criterion [AIC]). Acronyms established in the Abstract should be reestablished in the text. Do not start sentences with acronyms; do not use an apostrophe with plural acronyms (e.g., ANOVAs). All abbreviations in Appendices B, D, and E may be used within parentheses.

Punctuation

Use a comma after the next-to-last item in a series of >2 items (e.g., red, black, and blue). Do not use a comma to separate a compound sentence before the conjunction unless the sentence will be confusing otherwise (e.g., “Use an infrared scope at night and use a regular scope during the day.”, not “Use an infrared scope at night, and use a regular scope during the day.”). Write clearly enough so that you do not need to put quotation marks around words or phrases unless they are direct quotations. Do not hyphenate prefixes, suffixes, or combining forms unless necessary to avoid confusion. Follow these 3 rules to avoid common hyphenation errors: 1)

a phrase containing a participle or an adjective is hyphenated as a compound when it precedes the word modified, and it is written without a hyphen when it follows the word modified (e.g., “a small-mammal study” and “a study of small mammals” are both correct but have a different meaning than “a small mammal study”); 2) a modifier containing a number is usually hyphenated (e.g., a 6-yr-old mammal); and 3) a 2-word modifier containing an adverb ending in ly is not hyphenated (e.g., a carefully preserved specimen).

However, excessive use of compound modifiers before nouns makes for difficult reading; they tend to obscure the subject. Avoid ambiguous use of nouns as modifiers (e.g., wolf researchers, woman hunters). Use prepositions to avoid using nouns as adverbs (e.g., nesting by birds, not bird nesting; hunting with dogs, not dog hunting) and to avoid noun strings exceeding 3 words (e.g., radiotelemetry locations of dens in fall, not fall den radiotelemetry locations).

Closing quotation marks are always placed after periods and commas, but they may be placed either before or after other punctuation (CBE Style Manual Committee 1994:177–181). Fences must appear in pairs, but the sequence varies. Use $\{ \}$ in ordinary sentences, use $\{ [()] \}$ in mathematical sentences, and use $()$ only in special cases such as chemical names. Brackets are used to enclose something not in the original work being quoted (e.g., insertion into a quotation or a translated title [CBE Style Manual Committee 1994:58–59]).

Do not use a slash (/) to indicate “and” or “or” or to express a range; use only to indicate “divided by” or “per”. Avoid using words in ways other than their standard meanings; use quotation marks to imply a special meaning sparingly. Use trademarks (i.e., TM, ®) at the first mention of a product name, where appropriate, and not thereafter (if introduced in the Abstract, re-establish the information in the text). Manufacturer information (manufacturer, city, and state or country of manufacture) should be given immediately following the first use of a product name.

Enumerating Series of Items

A colon must precede a series of numbered items unless the list is preceded by a verb or preposition. For presentation of a simple series, place numbers followed by a closing parenthesis only (see example in **Key words** section) and separate phrases with commas or semicolons. When enumerating lengthy or complexly punctuated series, place the numbers at the left margin, with periods but no parentheses, and indent run-on lines (see example on page 311).

Common and Scientific Names

Do not capitalize common names of species except words that are proper names (e.g., Canada goose [*Branta canadensis*], Swainson’s hawk [*Buteo swainsoni*], and white-tailed deer [*Odocoileus virginianus*]). Scientific names follow the first mention of a common name, except in the title. If a scientific name is established in the abstract, re-established it in the text or tables. Scientific names following common names should be in italic font in parentheses with the first letter of the genus name capitalized and the species name in lower-case letters. Abbreviate genus names with the first letter when they are repeated within a few paragraphs, provided the meaning is clear and cannot be confused with another genus mentioned in the manuscript with the same first letter; e.g., we studied snow geese (*Chen caerulescens*) and Ross’ geese (*C. rossii*).

Do not use subspecies names unless essential, and omit taxonomic author names. Use “sp.” (singular; not italicized) or “spp.” (plural) to indicate that the identity of species within a genus was unknown; e.g., the field was bordered by willow (*Salix* sp.) and we trapped

several species of mice (*Peromyscus* spp.). Use the most widely accepted nomenclature where disagreement occurs. As general references for birds, use the most current edition of The American Ornithologists' Union Check-list (e.g., 1997) and periodic supplements published in *Auk*. For mammals, use Whitaker (1996). For plants there is no single reference for North America; we recommend citing the most widely accepted regional flora reference (e.g., in northwestern states, Hitchcock and Cronquist [1973]). Omit scientific names of domesticated animals or cultivated plants unless a plant is endemic or widely escaped from cultivation or is a variety that is not described adequately by its common name.

Measurement Units

Use Systeme Internationale d'Unites (SI) units and symbols (see Appendix D). Place a space between numbers and units or symbols (e.g. 10 m, 80° C). Do not use hyphens between numbers and units unless you are using a number-unit phrase to modify a noun (e.g., correct usage: 12-mm mesh, 3-yr study, 12 mm in diameter, and 2 mm wide; see section on Style and Usage.) Use English units (or, rarely, another type of scientific unit) in parentheses following a converted metric unit only in cases that may misrepresent: 1) the statistical precision of the original measurement or 2) the correct interpretation of the results. However, these non-SI units are permitted:

area – hectare (ha) in lieu of 10⁴ m²;
energy – calorie (cal) in lieu of Joule (J);
temperature – Celsius (C, without degree symbol) in lieu of Kelvin (K);
time – minute (min), hour (hr), day, etc. in lieu of seconds (sec);
volume – liter (L) in lieu of dm³.

The CBE Style Manual Committee (1994:200–205) provides definitions of SI units and prefixes and listed 9 references. The American Society of Testing Materials (1979) includes many conversion factors.

Securing Appropriate Approval(s)

It is increasingly important that scientists ensure their research activities are conducted such that the welfare of the animals they are studying (e.g., installing radiotransmitters) or the rights of human subjects (e.g., sending them a survey) is considered. Consequently, it is important that all peer-reviewed and peer-edited manuscripts submitted for publication demonstrate that these concerns have been addressed. Documentation should be included in the **Methods** section.

Animal care.—Appropriate documentation that proper animal care and use was applied when using live vertebrate animals for research must be submitted. Acceptable means of documentation include an Institutional Animal Care and Use Protocol number (as designated by most U.S. universities), the number of the permit or license issued to hold animals (such as with private breeders), or the equivalent. This policy covers all vertebrate animals, including mammals, birds, reptiles, amphibians, and fish.

Human subjects.—Appropriate documentation that proper approval was obtained to perform research involving human subjects (primarily surveys) must be provided. Acceptable means of documentation include a Human Subjects Protocol number (as designated by most U.S. universities) or the equivalent.

Citing Literature in Text

In most cases reference citations parenthetically at the end of a sentence; e.g., “Mallard brood survival was higher in the wettest years (Rotella 1992)”. Published literature is cited by author and year; e.g., Jones (1980), Jones and White (1981). Publications with ≥3 authors use “et al.”; e.g., (Jones et al. 1982). Do not separate the author and date by a comma, but use a comma to separate a series of citations. Use chronological order for citations in a series; e.g., (Jones 1980, Hanson 1986). If citations in a series have >1 reference for the same author(s) in the same year, designate the years alphabetically (in italics) and separate citations with semicolons; e.g., (Jones 1980*a*, *b*; Hanson 1981; White 1985, 1986). For citations in a series with the same year, use alphabetical order within chronological order; e.g., (Brown 1991, Monda 1991, Rotella 1991, Allen 1995). Do not give >5 citations in the text to reference a specific issue or scientific finding. For a quotation or paraphrase, cite author, year, colon, and page number(s); e.g., “We used Neyman allocation to minimize variance (Krebs 1989:216)”. Use the same style for a book or other lengthy publication unless the reference is to the entire publication; e.g., Odum (1971:223).

Cite documents that are cataloged in major libraries, including theses and dissertations, as published literature. This includes symposia proceedings and U.S. Government reports that have been widely distributed. However, cite such references as unpublished if they are not easily available. Cite all other documents as unpublished data in the text only.

Citing Unpublished Sources in Text

If references are not easily available or are not widely distributed cite them in the text only. This includes reports that are not published or widely distributed, manuscripts that have not yet been accepted for publication, and personal communications and observations. These references should be cited in text as follows:

1. Personal communications: (J. G. Jones, National Park Service, personal communication);
2. Unpublished report: (D. F. Timm, Alaska Department of Fish and Game, unpublished report). Or (E. J. Jones, North Carolina State University, unpublished report);
3. Unpublished data (including manuscripts in review): (D. F. Brown, Arizona Game and Fish Department, unpublished data).

****NOTE:** State and country names are abbreviated in parentheses (Appendix A) except when they appear in the title of an academic institution or agency. You should avoid overusing unpublished information. Not only are such references not as credible as published literature, but overuse of such citations will make your text cumbersome.

When referencing statistical programs, cite the name and version of software packages you used in the text (e.g., [SAS Version 8.02, 2001]), and state the full reference in the **Literature cited** (see below). Include website access information in citations if the program is only available online.

A manuscript accepted for publication is cited as a published manuscript in the text using the anticipated publication year. In the **Literature cited** section, show the year after the name(s) of the author(s) and “In Press” after the volume number. Do not cite manuscripts that are in review; use the unpublished style listed above. Refer to Appendix C for literature cited style.

Tables and Figures

Submit only essential tables and figures. Often tables overlap with presentation in the text, or the information can be easily printed in the text with less journal space. Do not present the same data in a table and a figure. Number tables and figures independently. Do not combine multiple tables or figures on one page. In the text, limit reference of tabular data to highlights of the most important information. Reference tables and figures parenthetically (Table 1, Figure 3) and avoid statements such as, “The results are shown in Tables 1–4.” Prepare line drawings only for data that cannot be presented as clearly in a table. For general guidance see CBE Style Manual Committee (1994:677–693).

Tables and figures should be able to stand alone (i.e., be self-explanatory). Avoid reference to the text, and be sure the title includes the species or subject of the data and when and where (region/state and country) the data were collected. Do not include statistics (e.g. *P*-values) or other statements of results in the titles. In rare cases, titles or footnotes of tables and figures may be cross-referenced to avoid repeating long footnotes or the same data. However, this violates the self-explanatory rule and should be avoided. Combine figure legends on a separate page and include them with manuscript text (following **Literature cited**). Tables may be included at the end of the text (following the figure legends or **Literature cited**) or loaded to AllenTrack as separate file(s). Load figures to AllenTrack as separate file(s).

Tables

Do not prepare tables for small data sets, those containing many blank spaces, zeros, repetitions of the same number, or those with few or no significant data. Put such data or a summary of them in the text. Day (1983) presents a practical discussion of tables.

For data that must be shown in a table, items that provide the most important comparisons usually read vertically, not horizontally. Construct tables for column-width (67 mm) printing. If the table will not fit in 1 column width, construct it for page-width printing not wider than 23 cm (9 inches). Some extra-wide tables can be printed vertically (e.g., *JWM* 50:192, 51:461), but such tables usually waste space. Extra-long and extra-wide tables require persuasive justification.

Table titles may vary, but we recommend this sequence: 1) name of the characteristic that was measured (e.g., mass, age, density), 2) measurement unit or units in parentheses (e.g., cm, No./ha, M:100 F, or %), 3) name of organism or other entity measured (e.g., “of Canada geese”), and 4) location(s) and date(s). Each part of the sequence can include >1 item (e.g., “Carcass and liver fat [%] and adrenal and kidney weight [mg] of white-tailed deer in Ohio and Michigan, USA, in 1975”). The title should not include statistics or statements of results (e.g. *P*-values). Please note: even though AllenTrack provides boxes to insert table captions and figure legends, captions and legends must also be part of the manuscript files.

Avoid beginning the title with superfluous words (e.g., The . . . , Summary of . . . , and Comparisons between . . .) and words that can be presented parenthetically as symbols or abbreviations (e.g., %). Symbols such as *n* and % in the title seldom need repetition in table headings. Do not use abbreviations in table title, except within parentheses. However, use standard abbreviations and symbols (Appendix B and D) in the table body and in footnotes (Table 3).

The lines printed in tables are called rules, and they should be used according to the following standards:

- 1. None drawn vertically within the table.

Table 3. Format and style guidelines for tables accompanying manuscripts submitted to *The Journal of Wildlife Management* or the *Wildlife Society Bulletin*.

| Item | Style rule |
|------------------------|--|
| Abbreviations | Use standard abbreviations. |
| Capitalization | Capitalize only the first letter for a column heading or phrase within a table. |
| Column heads | Required for each column. Do not submit tables with unlabeled columns. |
| Footnotes ^a | Use alphabetical superscripts, except for footnotes specifying probability levels. |
| Spacing | Double-space throughout, including title and footnotes. |

^a The first line of a footnote is indented (2 spaces). The remaining lines are flush with the left margin and double spaced. See page 312 for sequence of footnotes.

- 2. Each table contains at least 3 rules – below the title, below the column headings, and at the bottom. Insert each as a single, continuous line. Do not use bold or extra-thick rules.
- 3. Use rules that straddle subheadings within the column heading (e.g., *JWM* 50:48, *WSB* 26:51; Table 4).
- 4. None to show summation; use “Total” or equivalent in the row heading.
- 5. Do not use rules to join the means in multiple-range tests. Use Roman upper-case letters instead of rules (e.g., 12.3A^a, 16.2A, and 19.5B) where the superscript “a” references a footnote (e.g., “^aMeans with the same letters are not different (*P* > 0.10)”); *JWM* 50:22, *WSB* 26:213–214). Upper-case letters may be used in a similar fashion to reference the relationship of data among columns (e.g., *JWM* 50:371).
- 6. Use straddle rules in column headings to join related columns and reduce wordage (e.g., *JWM* 50:31). Label columns to avoid unnecessary print in the data field. For example, instead of “ $\bar{x} \pm SE$,” label \bar{x} and SE separately so that \pm need not be printed. Similarly, label sample size columns “*n*” instead of using numbers in parentheses in the data field.

Keep column- and row-heading words out of the data field. Type main headings flush left, and indent their subheadings (e.g., *JWM* 50:86, *WSB* 26:97). For column- and row-headings, only capitalize the first word and proper nouns (e.g., No. of times detected in Nevada), and do not use bold font. In the data field, do not use dashes (often misused to mean no information) or zeros unless the item was measured, and 0, 0.0, or 0.00 correctly reports the precision (measurement). Similarly, respect digit significance in all numbers, particularly percentages. Do not use percentages where *n* is <26, except for 1 or 2 samples among several others where *n* is >25. Where the number of significant digits varies among data in a column, show each datum at its precision level (i.e., do not exaggerate precision). For *P* values only use 3 digits past the decimal, and do not list *P* = 0.000; the correct form is *P* < 0.001.

Table 4. Example of correct format of tables accompanying manuscripts submitted to *The Journal of Wildlife Management* or the *Wildlife Society Bulletin*.

| Site | Animal group | | | |
|--------|---------------|-------------|---------------|-------------|
| | Avian | | Mammalian | |
| | Insectivorous | Carnivorous | Insectivorous | Carnivorous |
| Xeric | 5 | 3 | 2 | 4 |
| Mesic | 7 | 5 | 1 | 3 |
| Hydric | 12 | 7 | 5 | 8 |

Never include “naked” decimal points in the data field. In other words, all decimals should be surrounded by a number (e.g., 0.05, 1.00, etc.).

For footnote superscripts use asterisks for probability levels and lower-case Roman (not italic) letters for other footnotes. Place letters alphabetically in the following sequence: in the title, then left-to-right, and then down. Make certain that each footnote character in the title and table matches an explanation in a footnote that is indented below the table. Left-justify run-on lines of footnotes. Use footnotes to reduce cluttering the title and table with details. The most common errors in tables are single spacing, incomplete titles, naked decimal points, and ambiguous or unnecessary characters in the data field.

Figures

Most figures are either line (or computer) drawings or pictures (picture is used to distinguish scene or object photographs from photos of drawings). If possible, photographic prints should not exceed 20×25 cm. Do not submit color figures unless you are able to pay for printing (currently \$650/color plate [November 2005]). For additional guidance, consult Allen (1977), the CBE Style Manual Committee (1994:693–699), and Day (1983).

Begin figure captions on a new page immediately following the **Literature cited**. Figure captions tend to be longer than table titles because figures are not footnoted. The caption may be several sentences and include brief suggestions for interpreting the figure content. Like table titles, figure captions should allow the figure to be self-explanatory, describe the variables displayed and the date(s) and location(s) at which the data presented were gathered. The caption should not include statistical results. Type the label of each figure (e.g., Figure 1, Figure 2) on the page containing that figure.

Pictures.—Pictures must have sharp focus in the most important parts of the image, have high tonal contrast, and have a reference scale if size is important. Letters, scales, or pointers can be drawn on the prints, but they must be of professional quality. Sets of 2–4 related pictures can be handled as 1 figure if prints are the same width and will fit in a space $67 \times <170$ mm when reduced for printing.

Line drawings.—Consider whether a drawing can be printed column width (67 mm) or is so detailed that it must be printed page width (138 mm). The difference depends mainly on size of characters and lengths of legends drawn on the figure. If page width is necessary, consider omitting some of the detail, and look for ways to shorten legends. Column-width figures are preferred (e.g., *JWM* 50:145).

Before revising the first sketch, determine the minimum height for letters, numbers, and other characters, which must be ≥ 1.5 mm tall after reduction for printing. Determine width in millimeters for the revised sketch. To determine the minimum height (mm) for characters, multiply the width by 0.0224 for column-width printing or 0.0109 for page-width printing. If in doubt as to printed width, use the column-width multiplier. The product is the minimum height in millimeters. Use at least the next larger character height available. Hand-drawn lines and lettering and typewriter characters are not acceptable. We recommend professionally prepared line drawings.

Only capitalize the first word and proper nouns on axis labels and keys. Lettering within figures follows the same guidelines as manuscript text. Use italic letters only where they are essential to the meaning, as in mathematical terms and most metric units (see

subsection on Math. and Stat. and Appendix B). Identify arbitrary symbols by legend within the figure (preferred) or, for those normally available to the printer (e.g., CBE Style Manual Committee [1994:693–699]), in the figure title.

Review Process

Upon receipt, the editorial staff examines a manuscript to determine if it is in proper style and format and if the subject matter is appropriate. If style and format are seriously flawed, the paper may be returned for revision before being sent to referees. If subject matter is inappropriate, the Editor may return the paper to the author with an explanatory letter.

The Editorial staff selects an AE who handles the initial review process. The manuscript is assigned to 1 or more (usually 2) reviewers. All reviews are submitted electronically via AllenTrack. Reviewers' comments are sent to the AE, who usually takes 1 of 3 actions after assessing the manuscript and review comments: 1) the manuscript is forwarded to the EIC with a recommendation to publish without revision (extremely rare), 2) the manuscript is returned to the author with review comments and suggestions for revision, or 3) the manuscript is rejected.

Several revisions may be necessary before the AE recommends rejection or acceptance. Manuscripts returned to authors for revision must be resubmitted as a revision on AllenTrack within 6 months or the manuscript will be rejected, requiring resubmission as a new paper. Final acceptance or rejection of manuscripts is decided by the EIC. Typically, the EIC follows the AE's recommendation but this is not guaranteed.

Once your manuscript is accepted, you will need to provide a non-pdf version (Word, Text, or RTF) for copyediting purposes if you have not done so already. This non-pdf version does not need to include tables or figures unless requested. After acceptance, manuscripts are copyedited and then returned to the authors for approval. After the final copyedited version of a manuscript is received by the EIC, it enters the queue for publication and usually is printed in the next available issue.

Peer-refereed Manuscripts (JWM and WSB)

The Editorial office assigns peer-refereed manuscripts that have been accepted for review to an AE and 2 qualified referees to review the paper. They consider expertise, affiliation, geographic location, date of last review, and performance on previous reviews when selecting referees.

Referees are emailed and asked to complete their review within 3 weeks for *JWM* and 6 weeks for *WSB*. Reviewers have immediate access to the manuscript once they accept the assignment. Reminder notices are sent on a regular basis until the review has been received. Despite these measures, it is sometimes necessary to replace delinquent reviewers. It may take >2 months before the AE receives a complete set of reviews.

Occasionally, the EIC or AE judges that a referee's comments reveal biases, lack objectivity, are illogical, or otherwise lack merit. In such cases the EIC or AE may ask for a manuscript revision despite negative comments from 1 or 2 referees. A second opinion from referees who recommended rejection also may be requested.

Manuscripts returned to authors for revision must be revised and returned to the AE within a reasonable deadline set by the AE or the manuscript will be withdrawn from the review process, requiring resubmission of the manuscript for further consider-

ation. Once a completed revision is returned, the revised manuscript is reviewed again by the AE and either rejected or forwarded to the Editor with a recommendation to accept the manuscript for publication. Sometimes the revision process requires several iterations before the AE makes a final decision.

Peer-edited Manuscripts (WSB)

The EIC assigns manuscripts that have been submitted for review in the peer-edited category to an AE for peer-edited manuscripts. The AE will recommend potential reviewers who the editorial staff will then contact. The AE considers areas of expertise, affiliation, and geographic location, when selecting guest Editorial Panel Members (EPM).

After completing his or her review, the EPM returns the manuscript to the AE with comments and a recommendation to either accept or reject the manuscript. In some instances, the AE may seek additional input on the manuscript before passing their recommendation to the EIC. Upon careful review of the manuscript and consideration of all comments and recommendations, the EIC makes the final decision to accept or reject the paper.

Acceptance and Rejection Policies

Final acceptance of manuscripts is decided by the EIC. The EIC bears final responsibility for the value and quality of materials that appear in publications of The Wildlife Society and makes decisions accordingly. These decisions may differ from referees' comments seen by authors and recommendations made by referees, including the AE. In rare instances, the EIC's decision to accept or reject a manuscript will not agree with the recommendation made by an AE.

In rendering a decision, the EIC evaluates the manuscript and comments of the review team. The following are some of the problems that typically result in rejection: 1) flaws in design or logic that make the results invalid, biased, or questionable; 2) failure to contribute new knowledge; 3) trivial subject matter; 4) previous publication of the same or closely related material; 5) subject matter of local rather than regional, national, or international interest; and 6) poor organization and presentation.

The author of a rejected manuscript may feel that referees' comments support publication and that the editorial decision was wrong. The author should realize that the EIC receives 2 sets of comments from each referee, one open and one confidential. The confidential evaluation may reveal weaknesses not mentioned in

comments seen by the author. One referee may have discovered weaknesses missed by the other referees. Further, the EIC may identify problems missed by both referees and the AE.

Appeal and resubmission.—The author may question the reasons for rejection by writing the EIC, stating his or her case, and asking for reconsideration. Reconsideration of a rejected manuscript requires a convincing rebuttal letter from the author(s). Authors should not revise and resubmit the manuscript without first writing a letter requesting reconsideration, which saves time for the EIC and the author.

Accepted manuscripts.—Final versions of manuscripts accepted for publication will undergo further rounds of in-house editing by the editorial staff. The staff will make many of the corrections to the manuscript and return the edited copy to the corresponding author with a list of questions that need to be answered. Authors will be given a reasonable amount of time to respond. Delays may result in the manuscript being carried over to a future issue or, even, rejected.

Page proofs.—The final production stages of the *The Wildlife Society* publications are handled at by Allen Press (Lawrence, Kans.). Page proofs of each paper are created by Allen Press and sent to each corresponding author. By this time, press deadlines are fast approaching and author corrections to page proofs are urgently needed, preferably within 48 hours of their receipt. Corrections should be e-mailed, faxed, phoned in, or sent by overnight or 2-day delivery, depending on how complicated they are. It is important that authors clearly communicate their recommended changes, mark proofs clearly, or describe changes in detail. Make only essential changes; in most cases authors must pay costs of substantive corrections to the final, approved manuscript.

Acknowledgments

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Literature cited

- Allen, A. 1977. Steps toward better illustrations. Allen Press, Lawrence, Kansas, USA.
- American Ornithologists' Union. 1997. Check-list of North American birds. Seventh edition. Allen Press, Lawrence, Kansas, USA.
- American Society of Testing Materials. 1979. Standard for metric practice, ASTM E 380–379. American Society of Testing and Materials, Philadelphia, Pennsylvania, USA.
- Batzli, G. O. 1986. Thoughts while cleaning out old editorial files. *Bulletin of the Ecological Society of America* 67:167–168.
- CBE Style Manual Committee. 1994. Scientific style and format: the CBE manual for authors, editors, and publishers. Sixth edition. Council of Biological Editors, Cambridge University, New York, New York, USA.
- Day, R. A. 1983. How to write and publish a scientific paper. Second edition. ISI Press, Philadelphia, Pennsylvania, USA.
- Gill, J. D., and G. B. Healy. 1980. Guidelines for *Journal of Wildlife Management* manuscripts, 1980. The Wildlife Society, Washington, D.C., USA.
- Guthery, F. S. 1987. Guidelines for preparing and reviewing manuscripts based on field experiments with unreplicated treatments. *Wildlife Society Bulletin* 15:306.
- Hitchcock, C. L., and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Washington Press, Seattle, Washington, USA.
- Hurlbert, S. H. 1984. Pseudoreplication and the design of ecological field experiments. *Ecological Monographs* 54:187–208.
- Kendall, R. L. 1981. Dual publication of scientific information. *Transactions of the American Fisheries Society* 110:573–574.
- MacInnes, C. D. 1978. Editorial-expression of statistical results. *Journal of Wildlife Management* 42:700–701.
- Mack, R. N. 1986. Writing with precision, clarity, and economy. *Bulletin of the Ecological Society of America* 67:31–35.
- Ratti, J. T., and L. W. Ratti. 1988. Manuscript guidelines for the *Journal of Wildlife Management*. *Journal of Wildlife Management* 52(1, Supplement).
- Ratti, J. T., and L. A. Smith. 1998. Manuscript guidelines for the *Journal of Wildlife Management*. *Journal of Wildlife Management* 62(1, Supplement).
- Reidel, S., and H. Crowder. 1999. *Wildlife Society Bulletin* guidelines for

manuscripts: 1998 revision of Guidelines for authors and reviewers of Wildlife Society Bulletin manuscripts. *Wildlife Society Bulletin* 26:657–690.

Strunk, W., Jr., and E. B. White. 1979. *The elements of style*. Third edition. Macmillan, New York, New York, USA.

Swanson, E. 1974. *Mathematics into type: copy editing and proofreading mathematics for editorial assistants and authors*. American Mathematics Society, Providence, Rhode Island, USA.

Tacha, T. C., W. D. Warde, and K. P. Burnham. 1982. Use and interpretation of statistics in wildlife journals. *Wildlife Society Bulletin* 10:355–362.

Wang, D. 1986. Use of statistics in ecology. *Bulletin of the Ecological Society of America* 67:10–12.

Whitaker, J. O., Jr. 1996. *National Audubon Society field guide to North American mammals*. Alfred A. Knopf, New York, New York, USA, and Chanticleer Press, New York, New York, USA.

Wilson, D. E., and D. M. Reeder, editors. 1993. *Mammal species of the world: a taxonomic and geographic reference*. Second edition. Smithsonian Institution, Washington, D.C., USA.

(Note: Many citations that were used in the guidelines text as examples do not appear in the **Literature cited** section above.)

Immediately below the **Literature cited** section type the following in italics:

Associate editor:

Appendix A. On-line Manuscript Submittal

The *Journal of Wildlife Management (JWM)* and the *Wildlife Society Bulletin (WSB)* each have their own AllenTrack (AT) websites: <http://jwm.allentrack.net/> and <http://wsb.allentrack.net/>, respectively. The submittal process for each site is similar. In this appendix, we outline the basic steps of the online submission process. Before submitting, please review the Unified Manuscript Guidelines and ensure that your manuscript is formatted accordingly. Manuscripts that seriously deviate from the requested format will be returned to authors, which could result in unnecessary delays.

Logging In to Your AT Account(s)

To create a new account or find out if you already have an account, click “new authors should register for an account” and provide the requested information. If you forget your login name and/or password, click the “forgot my password” link, enter the requested information, and AT will email you your login name and a temporary password. If you do not receive the email from AT within a few hours, please register as a new author or contact the editorial office. Remember *JWM* and *WSB* are separate sites and have separate databases. Registering for one will not register you for the other. You may use the same login and password for both.

Your AT Homepage

Having successfully logged in, you will be taken to your *JWM* or *WSB* AT homepage. There, under “Author Tasks,” you will see the following options: “Author instructions,” “Submit pre-submission inquiry,” and “Submit manuscript.” There also is a “General Tasks” heading with the options “Modify profile/password” and “logout.” You can use this “General Tasks” link to update your profile (e.g., change your address, add or delete key words) and to modify your password. We encourage you to use this link to access all AT tasks (e.g., submitting a manuscript or review, checking the status of your manuscript). The links embedded in emails you receive from *JWM* or *WSB* are task-specific and, once that task has been completed, the links will no longer work. If you are reviewing a manuscript for the publication, there will also be links on your home page for that task.

Submitting Your Manuscript

You will be taken through a series of 4 screens as you submit your manuscript:

1. The first screen is a form asking for author, title, abstract, and file quantities. You will be asked to enter corresponding author information first and contributing author information later. Do not enter the corresponding author information again as a contributing author. Recognizing that the corresponding author is not always the first author, you will be asked to select an order for each author entered. You will also be asked to provide email addresses for your co-authors. You will not be able to proceed without this information, so if a co-author does not have an email address, or if it is unavailable, make one up (e.g., unknown@unknown.com). On the first screen, you will be asked to enter the title, running head, and abstract. Reviewers do not see the submittal form, so you must include title, running head, and abstract in the manuscript as well. At the end of the first screen you will be asked to identify how many files will be uploaded (cover letter, article file, color figure[s], black and white figure[s], tables, data sets, supplemental material, author pictures or supplemental pictures). You may “save and continue,” “save and exit,” or “cancel” at any time.
2. The second screen provides you with browser buttons to upload your file(s). Both editorial offices accept manuscripts in Word only. Tables may be submitted as part of the manuscript text file. However, if you used Excel to construct your table, upload your table as a separate file. Figures must be uploaded as separate files. Include figure titles at the end of the manuscript text file following Literature cited. Multiple tables and figures may be uploaded as individual files – please just keep each table and figure on its own page. Table headings should remain in the table. (The boxes that are provided in AT for table headings and figure captions are not transferred to the reviewer pdf files, so you must keep this information in the manuscript.) Once all files have been uploaded, “submit” the manuscript files. If you have multiple article files, you will be asked to order them so that a merged pdf file can be created for the reviewers.
3. The third screen is a completion screen that will provide you with a manuscript number for your submission (e.g., 2005–821). Please use this manuscript number in all correspondence. During this stage, all files will be converted to pdf format. This takes up to 30 minutes. If the conversion takes longer than 30 minutes, please contact the editorial office. Some common reasons why files do not convert properly include large files (i.e., GIS-related images), incompatible file formats (we only accept pdf, eps, jpeg, tiff, postscript, word, and power point), and embedded links. You can leave AT while the files convert and return to your manuscript at a later time. However, you do need to review and approve the converted pdf files before they are forwarded to the editorial office.
4. The final screen allows you to verify that your manuscript was uploaded and converted correctly. You can make corrections at this stage (e.g., replace, delete, or rename a file). Once you approve the converted files, your manuscript is sent to the editorial office.

The *JWM* or *WSB* editorial office will send you an email confirming that your submission has been received. If you do not receive an email within 2 days of submitting, please contact the editorial office.

If you are asked to revise your manuscript, the email will contain a link to AllenTrack and your manuscript. Again, you can reach

the manuscript by logging on as described above. You will not be required to re-enter the manuscript metadata. Instead, when ready, REPLACE and ADD files as necessary. Files that have not been edited and are to remain with the current manuscript version may be left as is (e.g., figure files). DELETE any files that are no longer part of the current version. AllenTrack saves a copy of the original submittal and carrying old files forward may create confusion. Include a cover letter that details how you responded to the comments from the Associate Editor and reviewers.

Appendix B. Abbreviations for United States and Canadian political units. Use American National Standards Institute (ANSI) abbreviations in parentheses, table and figure bodies, footnotes, and the Literature cited. Use U.S. Postal Service (USPS) abbreviations only in addresses with zip codes. A blank means do not abbreviate.

| Unit | ANSI | USPS |
|----------------------|---------------|------|
| U.S. and territories | | |
| Alabama | Ala. | AL |
| Alaska | Alas. | AK |
| American Samoa | Am. Samoa | AS |
| Arizona | Ariz. | AZ |
| Arkansas | Ark. | AR |
| California | Calif. | CA |
| Canal Zone | | CZ |
| Colorado | Colo. | CO |
| Connecticut | Conn. | CT |
| Delaware | Del. | DE |
| District of Columbia | D.C. | DC |
| Florida | Fla. | FL |
| Georgia | Ga. | GA |
| Guam | | GU |
| Hawaii | Haw. | HI |
| Idaho | Id. | ID |
| Illinois | Ill. | IL |
| Indiana | Ind. | IN |
| Iowa | Ia. | IA |
| Kansas | Kans. | KS |
| Kentucky | Ky. | KY |
| Louisiana | La. | LA |
| Maine | Me. | ME |
| Maryland | Md. | MD |
| Massachusetts | Mass. | MA |
| Michigan | Mich. | MI |
| Minnesota | Minn. | MN |
| Mississippi | Miss. | MS |
| Missouri | Mo. | MO |
| Montana | Mont. | MT |
| Nebraska | Nebr. | NE |
| Nevada | Nev. | NV |
| New Hampshire | N.H. | NH |
| New Jersey | N.J. | NJ |
| New Mexico | N.M. | NM |
| New York | N.Y. | NY |
| North Carolina | N.C. | NC |
| North Dakota | N.D. | ND |
| Ohio | Oh. | OH |
| Oklahoma | Okla. | OK |
| Oregon | Oreg. | OR |
| Pennsylvania | Pa. | PA |
| Puerto Rico | P.R. | PR |
| Rhode Island | R.I. | RI |
| South Carolina | S.C. | SC |
| South Dakota | S.D. | SD |
| Tennessee | Tenn. | TN |
| Texas | Tex. | TX |
| Trust Territory | Trust Territ. | TT |
| Utah | Ut. | UT |

Appendix B. Continued.

| Unit | ANSI | USPS |
|------------------------------------|--------------------|------|
| Vermont | Vt. | VT |
| Virginia | Va. | VA |
| Virgin Islands | V.I. | VI |
| Washington | Wash. | WA |
| West Virginia | W.Va. | WV |
| Wisconsin | Wis. | WI |
| Wyoming | Wyo. | WY |
| Canadian provinces and territories | | |
| Alberta | Alta. | AB |
| British Columbia | B.C. | BC |
| Manitoba | Manit. | MB |
| New Brunswick | N.B. | NB |
| Newfoundland | Newf. | NF |
| Northwest Territories | Northwest Territ. | NT |
| Nova Scotia | N.S. | NS |
| Ontario | Ont. | ON |
| Prince Edward Island | Prince Edward Isl. | PE |
| Quebec | Que. | PQ |
| Saskatchewan | Sask. | SK |
| Yukon Territory | Yukon Territ. | YT |
| Other | | |
| United States | U.S. | |
| New Zealand | N.Z. | |
| United Kingdom | U.K. | |

Appendix C. Literature Cited Style

Type the **Literature cited** immediately following the text, not necessarily on a new page. Double-space **Literature cited** and use hanging indents for second and subsequent lines of a citation. Spell out all words in the **Literature cited** (i.e., do not use abbreviations). However, the following 3 exceptions are allowed in author and publisher addresses: 1) Washington D.C., 2) U.S. (e.g., U.S. Forest Service), and 3) USA. Alphabetize by authors' surname(s), regardless of the number of multiple authors for the same publication. Within alphabetical order the sequence is chronological.

Use sentence-case letters for all names in **Literature cited**, and place a comma between all names, even if there are only 2 (e.g., Schmidt, B. R, and J. Pellet). Use 2 initials (where appropriate) with 1 space between each initial. Only reverse the name order of the first author (e.g., Thogmartin, W. E., J. R. Sauer, and M. G. Knutson). For serial publications, show the issue number only if the pages of each issue are numbered separately. As in the text, spell out ordinal numbers (e.g., Third edition). Do not include words such as "Publishing" or "Inc." Do include "Press." Use the word Thesis to denote Master of Science (M.S.) or Master of Arts (M.A.), and use the word Dissertation for Doctor of Philosophy (Ph.D.). Do not write the total page number of books at the end of the citation. For foreign language publications, note the language of publication at the end of the citation in brackets (e.g., [In Spanish.]).

To document a file available for viewing and downloading via the World Wide Web, provide the following information: author's or organization's name (if known), date of publication or last revision, title of document, title of complete work (if relevant), URL, and date of access. Please review the following examples.

Book: General Format

McCullough, D. R. 1979. The George Reserve deer herd: population ecology of a K-selected species. University of Michigan, Ann Arbor, Michigan, USA.

Miller, K. V., and L. Marchinton. 1995. Quality whitetails: the why and how of quality deer management. Stackpole, Mechanicsburg, Pennsylvania, USA.

****NOTE:** Do not write the total page number of books at the end of citations.

Book – More than 1 Edition

Smith, R. L. 1974. Ecology and field biology. Second edition. Harper and Row, New York, New York, USA.

Book with >1 Publisher

Sowls, L. K. 1955. Prairie ducks: a study of their behavior, ecology, and management. Stackpole, Harrisburg, Pennsylvania, and Wildlife Management Institute, Washington, D.C., USA.

Gutiérrez, R. J., A. B. Franklin, and W. S. LaHaye. 1995. Spotted owl (*Strix occidentalis*). Account 179 in A. Poole and F. Gill, editors. The birds of North America, The Academy of Natural Sciences, Philadelphia, Pennsylvania, and The American Ornithologists' Union, Washington, D.C., USA.

Book – More than 1 Volume

Palmer, R. S. 1976. Handbook of North American birds. Volume 2. Yale University Press, New Haven, Connecticut, USA.

Book – Editor as Author

Temple, S. A., editor. 1978. Endangered birds: management techniques for preserving threatened species. University of Wisconsin Press, Madison, Wisconsin, USA.

Reprint of a Book

Leopold, A. 1933. Game management. 1946, Reprint. Charles Scribner's Sons, New York, New York, USA.

Book – Chapter

Zeleny, L. 1978. Nesting box programs for bluebirds and other passerines. Pages 55–60 in S. A. Temple, editor. Endangered birds: management techniques for preserving threatened species. University of Wisconsin Press, Madison, Wisconsin, USA.

Foreign Language Publication

Angulo, E. 2003. Factores que afectan a la distribución y abundancia del conejo en Andalucía. Dissertation, Complutense University, Madrid, Spain. [In Spanish.]

Government Publication

Lull, H. W. 1968. A forest atlas of the Northeast. U.S. Forest Service, Northeast Forest and Experiment Station, Upper Darby, Pennsylvania, USA.

Government Publication – Part of a Numbered Series

Anderson, D. R. 1975. Population ecology of the mallard: V. Temporal and geographic estimates of survival, recovery, and harvest rates. U.S. Fish and Wildlife Service Resource Publication 125, Washington, D.C., USA.

Government Publication – Agency as Author

National Research Council. 1977. Nutrient requirements of poultry. Seventh edition. National Academy of Science, Washington, D.C., USA.

****Note:** Cite in text as National Research Council (1977) or parenthetically

as (National Research Council 1977). For additional examples, see the Literature cited section of this manuscript.

Journals – General Format

Miller, M. R. 1986. Molt chronology of northern pintails in California. Journal of Wildlife Management 50: 57–64.

Steigers, W. D., Jr., and J. T. Flinders. 1980. A breakaway expandable collar for cervids. Journal of Mammalogy 61: 150–152.

****NOTE:** Issue numbers are included only if the pages of each issue are numbered separately.

Journals in Press – Year and Volume Known

Zelenak, J. R., and J. J. Rotella. 1997. Nest success and productivity of ferruginous hawks in northern Montana. Canadian Journal of Zoology 75:in press.

Journals in Press – Year and Volume Unknown

Giudice, J. H., and J. T. Ratti. In press. Biodiversity of wetland ecosystems: review of status and knowledge gaps. Bioscience.

Multiple Citations of the Same Author(s)

Peek, J. M. 1963. Appraisal of a moose range in southwestern Montana. Journal of Range Management 16: 227–231.

Peek, J. M. 1986. A review of wildlife management. Prentice-Hall, Englewood Cliffs, New Jersey, USA.

Peek, J. M., and A. L. Lovaas. 1968. Differential distribution of elk by sex and age on the Gallatin winter range, Montana. Journal of Wildlife Management 32: 553–557.

Peek, J. M., A. L. Lovaas, and R. A. Rouse. 1967. Population changes within the Gallatin elk herd, 1932–1965. Journal of Wildlife Management 31: 304–316.

Peek, J. M., and R. A. Rouse. 1966. Preliminary report on population changes within the Gallatin elk herd. Wildlife Science 82:1298–1316. (Note: fictitious citation used for example only.)

Software Package

SAS Institute 2001. Version 8.02. SAS Institute, Cary, North Carolina, USA.

Symposia and Proceedings – Complete Volume

DeGraaff, R. M., technical coordinator. 1978. Proceedings of workshop on management of southern forests for nongame birds. U.S. Forest Service General Technical Report SE-14.

Symposia and Proceedings – Individual Article

Dickson, J. G. 1978. Forest bird communities of the bottomland hardwoods. Pages 66–73 in R. M. DeGraaf, technical coordinator. Proceedings of workshop on management of southern forests for nongame birds. U.S. Forest Service General Technical Report SE-14.

Symposia and Proceedings – Part of a Numbered Series

Palmer, T. K. 1976. Pest bird control in cattle feedlots: the integrated system approach. Proceedings of Vertebrate Pest Conference 7: 17–21.

Symposia and Proceedings – Not Part of a Numbered Series – Complete Volume

McAninch, J. B. 1995. Urban deer: a manageable resource? Proceedings of the symposium of the 55th Midwest Fish and Wildlife Conference. North Central Section of The Wildlife Society, 12–14 December 1993, St. Louis, Missouri, USA.

****NOTE:** These citations must include dates and location.

Symposia and Proceedings—Not Part of a Numbered Series—Individual Article

Stout, S. L., and R. Lawrence. 1996. Deer in Allegheny Plateau forests: learning the lessons of scale. Pages 92–98 *in* Proceedings of the 1995 Foresters Convention. Society of American Foresters, 28 October–1 November 1995, Portland, Maine, USA.

**NOTE: These citations must include dates and location.

Theses or Dissertations

Brelsford, M. A. 1991. Effects of grazing by wapiti on winter wheat and winter rapeseed, and the effects of simulated wapiti use on winter wheat in northern Idaho. Thesis, University of Idaho, Moscow, Idaho, USA.

Tacha, T. C. 1981. Behavior and taxonomy of sandhill cranes from mid-continental North America. Dissertation, Oklahoma State University, Stillwater, USA.

Web Citation – Professional Site

Council of Biology Editors [CBE]. 1999 Oct 5. CBE home page. <<http://www.council-scienceeditors.org>>. Accessed 7 Oct 1999.

Web Citation – Article in an Electronic Journal (ejournal)

Browning, T. 1997. Embedded visuals: student design in Web spaces. *Kairos: A Journal for Teachers of Writing in Webbed Environments* 3(1). <<http://english.ttu.edu/kairos/2.1/features/browning/bridge.html>>. Accessed 21 Oct 1997.

Web Citation – Government Publication

National Oceanic and Atmospheric Administration [NOAA]. 2005. National Weather Service internet services team. Monthly precipitation for Reno, Nevada. <http://www.wr.noaa.gov/rev/hydrology/monthly_precip.php> Accessed 23 Aug 2005.

Newspaper, Newsletter, and Magazine Articles

Associated Press. 1997. Feathers could fly over dove hunting. *Columbus Dispatch*. 28 December 1997; section E:15.

Eisler, P., and J. T. Buckley. 1996. Voters to get a shot at hunting laws. *USA Today*. 25 April 1996; section A:4.

Hogan, M. 1997. Political season as important as hunting season. *Safari Times* 9(8):18.

Jones, D. M. 1997. Protecting animals at the ballot box. *Mainstream, Animal Protection Institute*. Spring: 24–27.

Jones-Jolma, D. 1993. The fight to reform trapping in Arizona. *The Animals' Agenda*. March–April: 20–24.

**NOTE: Citing from newspapers, newsletters, and magazines is discouraged and is only acceptable in certain rare circumstance (e.g., in papers dealing with public perceptions).

Court Cases

Cite complete title and year of case in text only.

Appendix D. Abbreviations commonly used in tables, figures, and parenthetic expressions. Only those metric units and their appropriate prefixes (CBE Style Manual Committee 1994) identified with an asterisk may be abbreviated in the text. A blank means do not abbreviate.

| Term | Abbreviation or symbol |
|---------------|------------------------|
| Adult | ad |
| Amount | amt |
| Approximately | approx |
| Average | \bar{x} |
| Calorie | cal |
| Celsius | C |
| Chi-square | χ^2 |
| Coefficient | coeff |

Appendix D. Continued.

| Term | Abbreviation or symbol |
|----------------------------------|-----------------------------|
| Coefficient of | |
| correlation, simple | r |
| multiple | R |
| determination, simple | r^2 |
| multiple | R^2 |
| variation | CV |
| Confidence interval | CI, $a \leq \bar{x} \leq a$ |
| Confidence limits | CL, $x \pm a$ |
| Day | d |
| Degrees of freedom | df |
| Diameter | diam |
| Diameter, breast height | dbh |
| Equation(s) | eq(s) |
| Expected | exp |
| Experiment | exp. |
| Female | F |
| F ratio | F |
| Gram | g |
| Gravity | g |
| Hectare | ha |
| Height | ht |
| Hotelling's T^2 | T^2 |
| Hour(s) | hr |
| Inside diameter | i.d. |
| Joule | J |
| Juvenile | juv |
| Kilocalorie | kcal |
| Lethal concentration, 50% | LC ₅₀ |
| Lethal dose, median | LD ₅₀ |
| Less than | < |
| Limit | lim |
| Liter | L |
| Logarithm, base e | ln or log _e |
| Logarithm, base 10 | log ₁₀ |
| Male | M |
| Maximum, minimum | max., min. |
| Meter ^a | m |
| Metric Ton | t |
| Minute | min |
| Month | |
| Month names | Jan, Feb, etc. |
| More than/Greater than | > |
| Number (of items) | No. |
| Observed | obs |
| Outside diameter | o.d. |
| Parts per billion | ppb |
| Parts per million | ppm |
| Percent | % |
| Population size | N |
| Probability | P |
| Range | |
| Sample size | n |
| Second | sec |
| Spearman rank correlation | r_s |
| Square | sq |
| Standard deviation (s) | SD |
| Standard error (s ₁) | SE |
| Student's t | t |
| Temperature | temp |
| Trace ^b | tr |
| Versus | vs. |
| Volt | V |
| Volume: liquid, book | vol, Vol. |
| Watt | W |
| Week | |
| Weight | wt |
| Wilcoxon test | T |
| Year(s) | yr |
| Z-statistic | Z |

^a All standard meter-based measurement units can be abbreviated in text when they appear after a number (e.g., mm, cm, km, etc.)

^b Define in a footnote (e.g., tr = <1%).

Appendix E. Abbreviations^a to be used in parenthetical expressions and table and figure bodies only. An asterisk (*) indicates a frequently misabbreviated word; a blank means do not abbreviate.

| Term | Abbreviation |
|------------------------------------|-----------------|
| abstract- | abstr. |
| academ- | acad. |
| acta | |
| administr- | adm. |
| advanc- | adv. |
| aeronautic- | aeronaut. |
| affair- | aff. |
| Afri- | Afr. |
| agency | |
| agricult-* | agric. |
| agronom- | agron. |
| Ameri-* | Am. |
| anal[<i>y</i>]- | anal. |
| anals | an. |
| anatomical | anat. |
| animal- | anim. |
| annal- | ann. |
| annu-* | annu. |
| Antarcti- | Antarct. |
| appli- | appl. |
| approximately | approx. |
| archaeology | archaeol. |
| archiv- | arch. |
| Arctic | Arct. |
| assistance | assist. |
| associ- | assoc. |
| Atlanti- | Atl. |
| atmos- | atmos. |
| Atmospheric Administration | and Atmos. Adm. |
| Australi- | Aust. |
| avian | |
| bac(k)teriolog- | bac(k)teriol. |
| behavio(u)r- | behav. |
| bibliogra- | bibliogr. |
| biennial | bienn. |
| biochem- | biochem. |
| biolo- | biol. |
| biometri- | biom. |
| board | |
| botan- | bot. |
| branch | |
| breeder | |
| British* | Br. |
| bullet- | bull. |
| bureau- | bur. |
| Canad- | Can. |
| catalogue | cat. |
| center- | cent. |
| central | cent. |
| chapter* | chap. |
| chemic- | chem. |
| chronicle | chron. |
| circula- | circ. |
| clini- | clin. |
| college(i)- | coll. |
| commerc- | commer. |
| commission- | comm. |
| committee | comm. |
| Commonw. Sci. and Ind. Res. Organ. | C.S.I.R.O. |
| commonwealth | commonw. |
| communications | commun. |
| company[ies] | co. |
| completion | |
| confer- | conf. |
| congres- | congr. |
| conserva-* | conserv. |

Appendix E. Continued.

| Term | Abbreviation |
|-----------------------|--------------|
| contamina- | contam. |
| coopera- | coop. |
| coordinator | coord. |
| corporation | corp. |
| council | counc. |
| current | curr. |
| depart-* | dep. |
| develop- | dev. |
| disease | dis. |
| disserta- | diss. |
| district | dist. |
| divis- | div. |
| Doctor of Philosophy | Ph.D. |
| east* | |
| eastern* | east. |
| ecolog- | ecol. |
| econom- | econ. |
| education(al) | educ. |
| electric[<i>q</i>]- | elec. |
| endocrinolog- | endocrinol. |
| energy | |
| engineer- | eng. |
| Engl- | Engl. |
| entomolog- | entomol. |
| environment- | environ. |
| Europ- | Eur. |
| evol- | evol. |
| experiment- | exp. |
| fauna | |
| federa- | fed. |
| field-naturalist | field-nat. |
| Finni- | Finn. |
| fishery[ies] | fish. |
| forest- | for. |
| foundation | found. |
| Franc- | Fr. |
| French | Fr. |
| gazette | gaz. |
| genera- | gen. |
| geogra- | geogr. |
| geolog- | geol. |
| German- | Ger. |
| Gesellschaft | Ges. |
| go(u)vernment- | gov. |
| handb- | handb. |
| helmintholog- | helminthol. |
| herpetolog- | herpetol. |
| histo(i)r- | hist. |
| human | hum. |
| ichthyolog- | ichthyol. |
| immunolog- | immunol. |
| information | inf. |
| inland | |
| instit- | inst. |
| interi- | inter. |
| internal | intern. |
| internat[<i>z</i>]- | int. |
| investiga- | invest. |
| Japa[<i>o</i>]n- | Jap. |
| journal | J. |
| laboratory | lab. |
| leaflet- | leafl. |
| libra- | libr. |
| magas[<i>z</i>]i- | mag. |
| mammalia- | mamm. |
| mammaolg-* | mammal. |
| management* | manage. |
| manua[<i>e</i>] | man. |

Appendix E. Continued.

| Term | Abbreviation |
|----------------------------------|-------------------|
| manufacturing | mfg. |
| marin- | mar. |
| Master of Science | M.S. |
| mathemat- | math. |
| maximum | max. |
| medi[e]ca[h][i]- | med. |
| meeting | meet. |
| memoir- | mem. |
| memorand- | memo. |
| memorial | mem. |
| meteorol- | meteorol. |
| method(s) | |
| Mex- | Mex. |
| microbiolog- | microbiol. |
| midland | midl. |
| midwestern | midwest. |
| minimum | min. |
| minist- | minist. |
| miscel- | misc. |
| monogra-* | monogr. |
| month- | mon. |
| morf[ph]olog- | morf[ph]ol. |
| mountain | mt. |
| muse- | mus. |
| National Academy of Science | Natl. Acad. Sci. |
| National Aeronautics and | Natl. Aeronaut. |
| National Oceanic and | Natl. Oceanic |
| National Research Council | Natl. Res. Counc. |
| national-* | natl. |
| natural [al-] ^b [el-] | nat. |
| newsletter | newsl. |
| nomenclat- | nomenclat. |
| north* | |
| northeast* | |
| northeastern* | northeast. |
| northern* | north. |
| northwest* | |
| northwestern | northwest. |
| Norwegian | Norw. |
| note(s) | |
| occasion- | occas. |
| offi- | off. |
| organic[q]- | org. |
| organis[z]a- | organ. |
| ornit(h)olog- | ornit(h)ol. |
| outdoor- | |
| Pacific | Pac. |
| pamf[ph]let- | pam. |
| paper- | pap. |
| parasitolog- | parasitol. |
| patholog- | pathol. |
| pharmacolog- | pharmacol. |
| philosoph- | philos. |
| physica- | phys. |
| physiolog- | physiol. |
| Pittman-Robertson* | |
| Polish | Pol. |
| press | |
| printer | |
| proceedings | proc. |
| professional | prof. |
| program* | |
| progres- | prog. |
| project- | proj. |
| protection | prot. |
| provincial | prov. |
| psycholog- | psychol. |
| public | |

Appendix E. Continued.

| Term | Abbreviation |
|----------------------|----------------|
| publica- | publ. |
| publishing company | publ. co. |
| quantit- | quant. |
| radio | |
| range | |
| raptor | |
| record- | rec. |
| region- | reg. |
| regulation | regul. |
| report- | rep. |
| reproduction | reprod. |
| research- | res. |
| resource-* | resour. |
| restoration | restor. |
| revi[u]- | rev. |
| Russi[k]- | Russ. |
| sanitar[t]- | sanit. |
| scien. | sci. |
| secti- | sect. |
| seminar | semin. |
| ser(i)olog- | ser(i)ol. |
| serie- | ser. |
| servi-* | serv. |
| society | soc. |
| southeastern | southeast. |
| Space Administration | and Space Adm. |
| special | spec. |
| station* | stn. |
| statistical | stat. |
| study(ies) | stud. |
| supplement | suppl. |
| survey | surv. |
| symposium | symp. |
| systematic | syst. |
| technical | tech. |
| technolog- | technol. |
| telemetry | telem. |
| toxicology | toxicol. |
| transactions | trans. |
| transportation | transp. |
| vertebrat- | vertebr. |
| veterinari-[y] | vet. |
| volum- | vol. |
| volunteer | |
| west* | |
| western* | west. |
| wild life | |
| wildfowl | |
| wildlife | wildl. |
| workshop | |
| zoolog- | zool. |

^a Words or roots followed by a hyphen encompass >1 word derived from the same root. Letters in brackets can substitute for the letters preceding the bracket(s).

^b Abbreviate “Naturaliste Canadien” as “Nat. Can. (Que.)” and “Nature Canada” as “Nat. Can. (Ottawa).”